Section: Community Medicine

Original Research Article

A STUDY ON PERCEIVED STRESS AMONG MEDICAL UNDERGRADUATES OF A PRIVATE MEDICAL COLLEGE IN ELURU, ANDHRA PRADESH STATE

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ABSTRACT

Background: Medical education is highly demanding due to its intense curriculum and frequent assessments. Perceived stress, or one's subjective experience of stress, is crucial to study as it can significantly impact medical students' mental health, academic performance, and well-being. **Objectives:** i) To assess perceived stress among undergraduate medical students of a Private Medical College in Eluru using Perceived Stress Scale-14. ii) To find out the association of Perceived Stress with socio-demographic data and lifestyle factors among the students.

Materials and Methods: An Analytical Cross-Sectional Study was conducted at ASRAM Medical College, Eluru, Andhra Pradesh during September and October 2024. The sample included 264 MBBS students selected by simple random sampling from all academic years. Data was collected using a pre-tested, self-administered questionnaire containing socio-demographic details, lifestyle factors, and the Perceived Stress Scale-14. Data was analysed using SPSS version 24 (trial version), applying Chi-square and t-tests with $p < 0.05$ considered statistically significant.

Results: The prevalence of perceived stress was found to be 54.5% among undergraduate medical students. A statistically significant association was observed between perceived stress and variables such as gender, academic satisfaction, parental satisfaction, physical activity, junk food consumption, sleep duration, abnormal sleep patterns, recreation time, and devotional/spiritual activity ($p < 0.05$).

Conclusion: The study found that 54.5% of medical undergraduates experienced stress, with statistically significant association to academic performance, lifestyle, and sleep. Early identification and targeted interventions are essential to reduce stress in this group

Keywords: Medical students, Perceived stress, Physical activity, Sleep, Spirituality.

INTRODUCTION

Stress is a natural human response to challenging situations and is especially prevalent in academic and professional environments. While a certain level of stress can enhance focus and performance, excessive or prolonged stress can negatively affect both mental and physical health. Therefore,

effective stress management is essential for maintaining overall well-being.[1] Perceived stress refers to an individual's subjective evaluation of the stress they are experiencing at a given time or over a longer period.[2] Tools like the Perceived Stress Scale are commonly used to assess this dimension of stress.[3] High levels of stress can impair cognitive functioning and hinder the learning ability of medical students.[4] Among various population groups, medical students are particularly vulnerable to stress due to the demanding academic curriculum, clinical responsibilities, and high personal and societal expectations.[5] Multiple studies have documented the high prevalence of stress among medical undergraduates globally and in India. For instance, a study in Mysore reported that 73% of medical students experienced moderate-to-severe levels of perceived stress, primarily attributed to academic pressures.[6] High stress levels can severely affect mental health, leading to conditions like anxiety, depression, sleep disorders, and maladaptive coping.[7] A study conducted at a private medical college in Mangalore reported that 42.5% of students experienced moderate-to-high stress levels.[8] Similarly, a study from North India observed a 53% prevalence of stress among medical undergraduates.[9] In Tamil Nadu, research revealed that female students experienced significantly higher stress levels, likely due to combined academic, cultural, and social pressures.[10] While academic factors remain the primary source of stress, other elements—such as financial difficulties, interpersonal conflicts, and family expectations—also play significant roles in increasing perceived stress among medical students.[9] The present study aims to assess the prevalence of perceived stress and its association with socio-demographic variables and lifestyle factors among undergraduate medical students.

Objectives

1. To assess perceived stress among undergraduate medical students of a Private Medical College in Eluru using the Perceived Stress Scale-14.
2. To find out the association of perceived stress with socio-demographic data and lifestyle factors among undergraduate medical students.

MATERIALS AND METHODS

An Analytical Cross-Sectional Study was conducted at ASRAM Medical College, Eluru, Andhra Pradesh, India with a study period of two months from September 1st, 2024, to October 31st, 2024. The study population includes all undergraduate medical students while those absent on the days of data collection were excluded from the study. The sample size was calculated using Cochrane's formula, and we got 264 based on a study by Bhavani Nivetha M et al. in Mysore,[6] which reported the prevalence of perceived stress among undergraduate medical students to be 80%. Data was collected using a pre-tested, self-administered questionnaire, which consisted of two parts. The first part addressed socio-demographic data and lifestyle factors, while the second part included the Perceived Stress Scale-14 to assess the degree to which respondents perceived situations in their life as stressful within the past month. A total score of 28 or above was considered indicative of psychological stress, as defined in a study conducted in PCMC Pune.[7] The collected data was entered into Microsoft Excel 2019 and analyzed using SPSS version 24 (trial version). Categorical data analysis was performed using Chi-square tests, and the mean difference between variables was analyzed using the t-test. A p-value of less than 0.05 considered statistically significant. Out of all undergraduate medical students, participants were selected through simple random sampling technique. Equal numbers of students were selected from both the convenor quota (CQ) and management quota (MQ) from each academic year. Approval from the Institutional Ethics Committee was obtained prior to the commencement of the study. Committee approval no: ASRAMS BHR-EC/Approval No.178/2024.

RESULTS

The study included a total of 264 undergraduate medical students. Among them, 38.6% were male and 61.4% were female. The majority of students 68.9% resided in hostels, whereas 31.1% were day scholars. Regarding sleep duration, 63.6% of students reported sleeping for less than 6 hours per day, while 36.4% had 6 or more hours of sleep. In terms of physical activity, 61.4% of students met the WHO-defined adequate physical activity levels, whereas 38.6% did not. Yoga practice was observed in 22.3% of students, while 77.7% did not engage in regular yoga. The prevalence of perceived stress was notable, with 54.5% of students experiencing high stress levels, while 45.5% had no stress.

In Table 1 a statistical analysis was conducted to assess the relationship between perceived stress and socio-demographic/lifestyle variables. A statistically significant association was observed between gender and stress levels ($p < 0.001$), indicating a difference in perceived stress between male and female students. Similarly, academic satisfaction was significantly associated with stress ($p < 0.001$), where students who were dissatisfied with their academic performance reported higher stress levels. Parental satisfaction also played a role, as students whose parents were dissatisfied with their academic performance had significantly higher stress levels ($p < 0.001$).

Students who engaged in adequate physical activity, as per WHO-defined criteria, reported lower stress levels, and this association was statistically significant ($p < 0.004$). Dietary habits also

influenced stress, with junk food consumption showing a significant association ($p < 0.038$) with increased stress levels. Additionally, daily sleep duration was a key determinant of stress levels, as students who slept for fewer hours per day had significantly higher stress levels ($p < 0.013$). Abnormal sleep patterns were also found to be a crucial factor in stress perception, with those experiencing frequent sleep disturbances reporting higher stress levels ($p < 0.001$).

These findings indicate that gender, academic satisfaction, parental satisfaction, physical activity, junk food consumption, sleep duration and abnormal sleep patterns significantly influence stress levels among medical students.

Table 1: Association Between Socio-Demographic & Lifestyle Factors and Perceived Stress

Factor		Not Stressed	Stressed	Chi-Square Value	p-value
Gender	Male	60.78%	39.22%	15.755	0.001
	Female	35.8%	64.2%		
Are you satisfied with your academic performance?	Satisfied	64.52%	35.48%	21.041	0.001
	Not Satisfied	35.09%	64.91%		
Are your Parents satisfied with your academic performance?	Satisfied	55.56%	44.44%	13.037	0.001
	Not Satisfied	33.33%	66.67%		
Are you doing Adequate Physical Activity according to WHO?	Yes	70.83%	29.17%	8.321	0.004
	No	53.47%	46.53%		
Amount of Junk Food eaten in a week	Never	64.0%	36.0%	8.400	0.038
	Once/week	51.69%	48.31%		
	Twice/week	43.1%	56.9%		
	>2 times/week	35.87%	64.13%		
Daily Average Sleep Time	< 6 hours	35.42%	64.58%	6.131	0.013
	≥ 6 hours	51.19%	48.81%		
Having any Abnormal Sleep Patterns	Yes	30.51%	69.49%	19.224	0.001
	No	57.53%	42.47%		

In Table 2, additional lifestyle factors influencing stress levels were analyzed. Among these, only two out of nine factors were statistically significant. Students who spent more time on recreational activities exhibited lower stress levels ($p = 0.015$), highlighting the role of leisure in managing stress. Similarly, students who spent more time engaging in spiritual or devotional activities had lower stress levels ($p = 0.005$), indicating a potential coping mechanism.

However, several lifestyle variables were not significantly associated with stress levels. Age ($p = 0.469$), Body Mass Index (BMI) ($p = 0.066$), Reading Hours Per Day ($p = 0.073$), Time Spent in Library Per Day ($p = 0.267$), Time Spent with Friends Daily ($p = 0.640$), Time Spent Interacting with Family Weekly ($p = 0.510$), and Mobile Usage Per Day ($p = 0.607$) did not show statistically significant associations with stress levels.

These findings suggest that recreation and spiritual activities play a significant role in stress management, whereas other factors such as BMI, social interactions, and study-related activities do not have a direct influence on perceived stress levels.

Table 2: Comparison of Perceived Stress with Socio-Demographic & Lifestyle Factors

Factor	Not Stressed (120)	Stressed (144)	p-value
Age	20.483 ± 1.67	20.583 ± 1.45	0.469
BMI	23.1548 ± 4.27	23.5414 ± 3.66	0.066
Reading hours per day	2.1938 ± 1.59	2.4410 ± 1.99	0.073
Duration of time spent in library per day in Hours	0.767 ± 1.46	0.983 ± 1.41	0.267
Time spent with friend's Daily time in Hours	4.008 ± 3.28	4.022 ± 3.62	0.640
Time spent interacting with family members Weekly time in Hours	7.383 ± 7.77	6.910 ± 11.56	0.510
Recreation time per day in Hours	2.6208 ± 1.97	2.3698 ± 1.50	0.015
Mobile usage per day in Hours	4.2204 ± 2.18	4.9444 ± 2.46	0.607
Time spent for devotional/spiritual activities per week in Hours	2.221 ± 4.92	1.181 ± 1.64	0.005

DISCUSSION

This study aimed to assess perceived stress among 264 undergraduate medical students at a private medical college in Eluru, Andhra Pradesh, in 2024. Among the participants, 38.6% were male, 61.4% female; 68.9% were hostellers and 31.1% were day scholars. The prevalence of stress was 54.5%, comparable to studies in Pune (49.5%, 2022)[7], Mangalore (42.5%, 2013)[8], and nationwide (53%, 2015)[9]. A higher prevalence was reported in Mysore (80%, 2018)[6], while lower rates were seen in South India (11%, 2021)[11], Delhi (43.8%, 2023)[12], Lucknow (37.9%, 2024)[13], an earlier Mumbai study (1998) reported 73% prevalence[14] and Karwar (PSS >28 in 33.8%)[15]. The differences in stress levels across studies may be due to

variations in academic pressure, curriculum structure and support systems in different colleges.

The mean PSS score was 28.19 ± 9.53, higher than Brahmbhatt et al. (27.53 ± 7.01)[8] and Anuradha R et al. (25.64 ± 5.44)[10]. Female students had significantly higher stress (29.605 ± 9.4) than males (25.931 ± 9.2), aligning with Mangalore (29.19 ± 6.95 vs 24.83 ± 6.84)[8], South India (12% vs. 9%)[11], India[9], and Tamil Nadu[16]. This may be due to academic and social pressures and greater expression of emotional symptoms.[17]

Academic dissatisfaction that is students who were dissatisfied with their academic performance was a key stressor in our study, aligning with a 2015 Indian study where satisfaction with education correlated with lower depression, anxiety, and stress scores.[9] In another study the vast academic curriculum accounted for 61.5% of total stress,[10] and in another high parental expectations were also found as determinants for stressed cases in another study.[8]

Final-year students reported the highest stress in our study, also seen in Tamil Nadu (2017)[10] and Lucknow (2024)[10], likely due to academic, clinical, and career uncertainties.

Physical activity showed a protective effect; students following WHO exercise guidelines had lower stress, in line with findings from Tamil Nadu (2018).[18] Sleep deprivation was prevalent (63.6% slept <6 hours) and was strongly associated with stress, similar to findings in Karwar[15] and Pokhara[19]. Poor sleep quality increases stress by impairing emotional regulation.

Junk food consumption was linked to higher stress, consistent with a study in Pokhara, India[19]. Social and spiritual activities were associated with significantly lower stress ($p = 0.015$ and $p = 0.005$), as supported by findings from Tamil Nadu (2017)[10]. These activities help reduce academic stress by enhancing emotional resilience.

CONCLUSION

The present study found a stress level of 54.5% in the medical undergraduates. Their as well as their parent's satisfaction with their academic performance, their physical activity levels, their junk food consumption frequency, daily average sleep time, whether they had any abnormal sleep patterns, their daily recreation time and time spent for devotional/spiritual activities were found to be significantly associated with their stress levels. Students' stress may influence their professional development and adversely impact academic performance.

Conflicts of interest: Nil

Declaration of Ethical Clearance: Taken Ethics Committee Approval dated 14.8.2024.

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RECOMMENDATION

For Students

Students can be advised to have more recreational time and time spent on devotional/spiritual activities by focusing more on productive academic practices.

Student counselling services and stress management programs need to be made available and accessible to curb this morbidity.

For Institutions

Periodic stress evaluation programmes and stress relief recreational activities can be conducted for the undergraduate students

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